Claims:

1. A method of making an aluminum reduction cell component having a stabilized surface, which comprises mixing together a carbonaceous material, TiB_2 and up to 25% by weight of an additive consisting of a combination of two intimately mixed compounds and baking the mixture into a cell component, wherein at least a first of the two compounds has a higher melting temperature than the baking temperature, whereby when the cell component is contacted with molten aluminum, the aluminum reacts with the additive to form a dense phase at the surface of the cell component, the dense phase having low solubility in aluminum.

2. A method according to claim 1 wherein up to 10% by weight of the additive is mixed with the carbonaceous material and TiB_2.

3. A method according to claim 2 wherein the combination of two intimately mixed compounds is selected from a group of combinations consisting of: TiO_2 and B_2O_3, TiC and B_2O_3, Al_2O_3 and B_2O_3, TiO_2 and $Na_2B_4O_7$, TiO_2 and BN, TiO_2 and B_4C, BN and B_2O_3 and Al-C-Ti master alloy and B_2O_3.

4. A method according to claim 2 wherein the combination of two intimately mixed compounds comprises TiO_2 and B_2O_3.

5. A method according to claim 4 wherein the TiO_2 and B_2O_3 are mixed in a ratio of 40-50% by weight TiO_2 and 50-60% by weight B_2O_3.

6. A method according to claim 2 wherein the intimately mixed compounds comprise particles less than 200 μm in size.

7. A method according to claim 6 wherein the particles are less than 30 μm in size.

8. A method according to claim 2 wherein the carbonaceous material and TiB_2 are mixed in the ratio of 50% by weight of carbonaceous material and 40 to 49% by weight of TiB_2.

9. A baked aluminum reduction cell component having a stabilized surface comprising carbonaceous material, TiB_2 and up to 25% by weight of an additive consisting of a combination of two intimately mixed compounds positioned in a carbon matrix between particles of the TiB_2 and reactable with molten aluminum to form a dense phase at the surface of the cell component, said dense phase having low solubility in aluminum, wherein at least a first of the two compounds has a higher melting temperature than a baking temperature of the cell component.

10. A baked cell component according to claim 9 containing up to 10% by weight of the additive.

11. A baked cell component according to claim 10 wherein the combination of two intimately mixed compounds is selected from the group of combinations consisting of: TiO_2 and B_2O_3, TiC and B_2O_3, Al_2O_3 and B_2O_3, TiO_2 and $Na_2B_4O_7$, TiO_2 and BN, TiO_2 and B_4C, BN and B_2O_3 and Al-C-Ti master alloy and B_2O_3.

12. A baked cell component according to claim 11 wherein the combination of two intimately mixed compounds comprises TiO_2 and B_2O_3.

13. A baked cell component according to claim 10 wherein TiO_2 and B_2O_3 are present in a ratio of 40-50% by weight TiO_2 and 50-60% by weight B_2O_3.

14. A baked cell component according to claim 9 wherein the intimately mixed compounds comprise particles less than 200 μm in size.

15. A baked cell component according to claim 14 wherein the particles are less than 30 μm in size.

16. A baked cell component according to claim 13 wherein the carbonaceous material and TiB_2 are present in the ratio of 50% by weight of carbonaceous material and 40 to 49% by weight of TiB_2.

17. A baked cell component according to claim 9 wherein the component comprises a cathode.

18. A baked cell component according to claim 9 wherein the component comprises ramming paste.

19. A baked cell component according to claim 9 wherein the component comprises a refractory coating.

20. A baked cell component according to claim 9 wherein the component comprises a cell side wall block.